

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 09/778,904
Attorney Docket No. Q63103

REMARKS

Reconsideration and allowance of this application, as amended, are respectfully requested. New claims 13-17 have been added. Claims 1-17 are now pending in the application. The rejections are respectfully submitted to be obviated in view of the amendments and remarks presented herein.

Examiner has requested clarification of the 10 MBytes/sec added to the 5 MBytes/sec in the accommodation route R1 on page 10, line 16. The 10 MBytes/sec does not come from R2. This space band of the accommodation route R1 is actually space band that is released by the accommodation release unit. This space band was originally reserved from accommodation route R1 following an accommodation OK determination (page 9, lines 10-16). Page 10, line 16 describes the release of this space band in accordance with an accommodation release demand d1, which is a release of 10 MBytes/sec added to the existing 5 MBytes/sec space band.

Rejection Under 35 U.S.C. § 103(a) - Shaffer et al.

Claims 1-4 and 7-10 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Shaffer et al. (U.S. Patent Number 6,657,965 B1) (hereinafter "Shaffer"). The rejection is respectfully traversed.

Regarding claims 1 and 7, Applicant's claimed invention relates to route candidate design among nodes from at least one of a starting node through a plurality of relay nodes to a terminal node. A plurality of different route candidates are designed from the at least one of starting node

to the terminal node. A demand is accommodated in a predetermined one of the designed routes according to a predetermined procedure.

Turning to Shaffer, an enhanced routing and reservation protocol is described and shown in figure 2. Routes of established connections in a communication system are reconfigured to provide the optimal path for a new connection based on priority status. One or more established connections having a lower priority status than a new connection are rerouted to accommodate the new connection on an optimal route. When a request signal for a new connection is received, an enhanced router computes an optimal path for the new connection using a routing protocol stored in memory (column 3, lines 39-44). The enhanced router also determines the priority status of the new connection (column 3, lines 45-48). The enhanced router determines whether sufficient bandwidth exists on each communication link on the optimal route to accommodate the new connection (column 3, lines 63 to column 4, line 7). Communication links in Shaffer are the connections between adjacent routers in the optimal route, and are monitored by adjacent enhanced routes to track the current status of each link.

In Shaffer, if a particular communication link on the optimal route does not have a sufficient amount of available bandwidth for a new connection, established connections with a lower priority status are rerouted through an alternate (secondary or less preferred) path in order to open up bandwidth on the optimal route. If no established connections with a lower priority status exist, or if the bandwidth available to be opened up is not enough for the new connection, the new connection is routed to a secondary or less preferred path.

Examiner maintains that Shaffer renders the claimed invention obvious. However, Shaffer does not teach at least “designing a plurality of different route candidates from said at least one of starting node to said terminal node,” as claimed. Shaffer only computes an optimal path for the new connection, and attempts to establish the new connection through the optimal path. If the new connection can not be established on the optimal path, Shaffer establishes the new connection on a secondary path. However, the optimal path and secondary path are not disclosed as being designed as a plurality of different route candidates, in which a demand is accommodated in a predetermined one of the designed routes. The new connection in Shaffer is always attempted to be established on the optimal path. If this can not be accomplished, the enhanced routers establish connection on the secondary path. The secondary path is not a designed route candidate from at least one of starting node to a terminal node, as claimed. Shaffer discloses the secondary path to be solely the switching of the enhanced routers to reroute the connection to bypasses the communication links of the optimal path. Therefore, a plurality of different route candidates is not designed in Shaffer. At least by virtue of the aforementioned differences, the invention defined by Applicant’s claims 1 and 7 are patentable over Shaffer. Applicant’s claims 2-4 and 8-10 are dependent claims including all of the limitations of independent claims 1 and 7, respectively, which, as established above, patentably distinguish over Shaffer. Therefore, claims 2-4 and 8-10 are distinguished over Shaffer for at least the aforementioned reasons as well as for their additionally recited features. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 103(a) are respectfully requested.

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With further regard to claims 2 and 8, an assignment of bands is described which assigns bands available in the individual route candidates to a plurality of different route candidates, as well as an ordering of priorities of the individual route candidates. Shaffer does not assign available bands to route candidates, nor does Shaffer order priorities of designed route candidates. Shaffer only tries to establish a new connection in an optimal route by rerouting existing connections in the optimal route to make room for the new connection. At least by virtue of this additional difference as well as the aforementioned differences, Applicant's claimed invention distinguishes over Shaffer.

With further regard to claims 4 and 10, an exchange is described where the route of the first priority and the route of the second priority is exchanged after accommodating the demand in the route of the second priority. Shaffer reroutes established connections through an alternate path to bypass the target link. After connection is re-established in the alternate path, the new connection is established in the optimal path. Shaffer does not exchange routes after accommodating the demand in the route of the second priority, as claimed. At least by virtue of this additional difference as well as the aforementioned differences, Applicant's claimed invention distinguishes over Shaffer.

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Rejection Under 35 U.S.C. § 103(a) - Shaffer in view of Chevalier et al.

Claims 5-6 and 11-12 have been rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Shaffer further in view of Chevalier et al (U.S. Patent Number 6,262,974 B1) (“Chevalier”). The rejection is respectfully traversed.

Regarding claims 5 and 11, Shaffer describes an enhanced routing and reservation protocol as described above. However, Shaffer does not disclose designing a plurality of different route candidates for at least one of starting node to a terminal node, and accommodating a demand in a predetermined one of the designed routes by a predetermined procedure. Additionally, as admitted by the Examiner, Shaffer does not teach retaining a “preliminary band.” Chevalier does not remedy the deficiencies of Shaffer. Chevalier does not disclose at least retaining a preliminary band and assigning the remaining bands to the plurality of different route candidates, and ordering the priorities of the individual route candidates, as claimed.

Chevalier determines link bandwidth by apportioning a pre-defined reservable link bandwidth into a nominal bandwidth portion and a common bandwidth portion. “The common bandwidth is the bandwidth reserved by the connection in excess of its nominal bandwidth when a bandwidth increase is performed to satisfy a temporary need for additional bandwidth” (column 9, lines 36-39). However, Chevalier splits each network connection into nominal and common portions, whereby the common bandwidth is reserved for excess needs. Chevalier does not assign remaining bands to the plurality of different route candidates after first retaining a preliminary band, as claimed. The common bandwidth in Chevalier is not a retained preliminary

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band. Conversely, Chevalier's common bandwidth is a designation of a reserved bandwidth set aside for each network connection. Each network connection in Chevalier is already assigned a bandwidth, which is then further split into nominal and common bandwidth designations.

Applicant's route design system retains a preliminary band, and then assigns the remaining bands to the plurality of different route candidates. Additionally, Chevalier also does not order the priorities of the individual route candidates. At least by virtue of the aforementioned differences, the invention defined by Applicants' claims 5 and 11 are patentable over Shaffer further in view of Chevalier. Claims 6 and 12 are dependent claims including all of the limitations of independent claims 5 and 11, respectively, which, as established above, patentably distinguish over Shaffer further in view of Chevalier. Therefore, claims 6 and 12 are patentable over Shaffer in view of Chevalier for at least the aforementioned reasons as well as for their additionally recited features.

Newly Added Claims

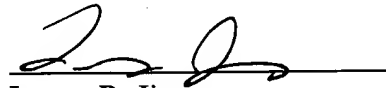
Claims 13-17 are newly added by this Amendment and are believed to be in condition for allowance.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,



Lenny R. Jiang
Registration No. 52,432

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

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